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# The Impact of Repetition-Induced Familiarity on Agreement With Weak and Strong Arguments

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Repeated statements are perceived as more valid than novel ones, termed the *illusion of truth effect*, presumably because repetition imbues the statement with familiarity. In 3 studies, the authors examined the conditions under which and the processes by which familiarity signals from repetition and argument quality signals from processing of message content influenced agreement with persuasive arguments. Participants with low or high motivation to process information were presented persuasive arguments seen once or twice. In all 3 studies, repetition increased the persuasiveness of weak and strong arguments when little processing of message content occurred. Two of the studies used a process dissociation procedure to reveal that both greater controlled processing (which reflected argument content) and the greater automatic influence of familiarity (which reflected repetition) were associated with increased acceptance of strong arguments but that greater controlled processing dissipated the benefits of familiarity for agreement with weak arguments.

*Keywords:* familiarity, repetition, argument quality, process dissociation procedure, information processing

I have said it thrice: What I tell you three times is true.

—Lewis Carroll, *The Hunting of the Snark, an Agony, in Eight Fits*

The Bellman from Lewis Carroll's (1876) *Hunting of the Snark* knew his psychology, if nothing else. In fact, statements repeated even once are rated as truer or more valid than statements heard for the first time, an effect called the *illusion of truth*, or IOT. The IOT was first demonstrated in a two-stage paradigm developed by Hasher, Goldstein, and Toppino (1977). They asked participants in the study phase of their experiment to guess the truth of both objectively true (*Lithium is the lightest of all metals*) and objectively false (*The People's Republic of China was founded in 1947*) statements, although participants were unaware of which ones were true and which were false. One week later, in the test phase, participants were shown a mix of old and new statements and asked to judge each one's validity. Repeated sentences (both true and false ones) were perceived as truer than novel sentences. The IOT has since been demonstrated for statements repeated anywhere from within an hour to over a period of 2 weeks (Begg, Armour, & Kerr, 1985; Hasher et al., 1977). Thus, even a single repetition can apparently make information appear more valid.

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Why might repetition have this effect? Begg, Anas, and Farinacci (1992) argued that what they called a "feeling of familiarity" produced the repetition-based IOT. According to these authors, any factor that generates a typically nonconscious sense of familiarity automatically and unintentionally increases validity (Begg et al., 1992, p. 447). Perhaps influenced by Bacon's (1979) finding that perceived familiarity has a stronger impact on validity than actual familiarity, Begg et al. (1992) did not endorse any particular aspect of actual repetition as the mechanism that imbues statements with familiarity. Instead they argued that anything that made a statement "feel familiar" would increase its perceived validity. Their own work showed that the IOT emerges as long as even part of the test phase statements has been encountered before (Begg et al., 1985). For example, the statement "The extended right arm of the Statue of Liberty is 42 feet long" is rated as truer if the phrase "Statue of Liberty" has been seen earlier. Thus, even activating the topic of statements increases the perceived truth value of those statements when they are presented later. One explanation of such familiarity effects in the absence of actual repetition relies on the ease or fluency with which stimuli are processed (Lee & Labroo, 2004; Reber & Schwarz, 1999). The subjective positivity typically associated with processing fluency (e.g., Garcia-Marques & Mackie, 2000; Winkielman & Cacioppo, 2001; but see Briñol, Petty, & Tormala, 2006; Unkelbach, 2007) can be mistakenly attributed to the stimulus itself and not to the relatively effortless processing. Thus, fluent processing of even completely novel stimuli can increase positive evaluations on multiple dimensions. However, as might be predicted from such a fluency account, the strongest IOT effects seem to be produced by verbatim repetition when processing fluency is maximal (Begg et al., 1985).

Evidence for the automatic effect of familiarity on validity comes from studies that have shown that although explicit recall of a statement's actual truth value can attenuate the IOT, it does not always completely eliminate it (Arkes, Hackett, & Boehm, 1989;

Begg et al., 1992). In one such study, participants heard statements read by either a man who always lied or by a woman who always told the truth (Begg et al., 1992). Participants were later asked to evaluate the statements without being told whether the man or the woman stated it initially. When participants explicitly recalled the source, the IOT effect was moderated: Statements from the lying man were perceived as less true than statements by the truthful woman. Nevertheless, both true repeated statements and false repeated statements were perceived as truer than novel statements. Similarly, participants exposed to statements with either truth-biased ("It is well-known that . . . ") or false-biased tags ("Few people believe that . . . ") rated both types of statements truer when they were repeated than they did novel statements, although initially truth-biased statements were rated as truer than initially false-biased statements (Begg & Armour, 1991). Begg and Armor (1991) used a process dissociation procedure (PDP; Jacoby, 1991) to assess the impact of resource-intensive explicit memory for the truth or falsehood of the statement and the automatic impact of increased familiarity on truth judgments. For truth-biased statements, both explicit recall and repetition consistently signaled validity, but for false-biased statements, these two processes produced divergent signals, allowing the contributing processes to be dissociated. On the basis of the assumptions of the PDP (Jacoby, Begg, & Toth, 1997; Jacoby & Shrout, 1997), these analyses revealed that the increased validity ratings given to repeated statements, even in the face of contradictory information, are due to an unintentional, automatic familiarity signal associated with repeated statements (Skurnik, Yoon, Park, & Schwarz, 2005).

Such an unfettered impact of repetition is obviously of great theoretical and practical importance to persuasion research. Indeed, repetition has been found to increase the perceived validity of and agreement with both persuasive arguments (Arkes et al., 1989; Moons, Mackie, & Garcia-Marques, 2007) and persuasive messages (Garcia-Marques & Mackie, 2001), extending the IOT effect to statements of opinion. For example, Arkes et al. (1989) showed that statements of opinion became more compelling upon repetition, and Garcia-Marques and Mackie (2001) showed that the persuasiveness of messages composed of weak arguments was particularly enhanced by repetition.

Nevertheless, it is not always the case that repetition of arguments increases agreement with them. Studies in which the content of persuasive arguments is manipulated to be relatively compelling or relatively specious have produced findings indicating that repetition sometimes increases agreement with weak arguments and sometimes does not. For example, Cacioppo and Petty (1989) demonstrated that agreement with weak arguments decreased upon repetition, whereas Garcia-Marques and Mackie's (2001) findings indicated that weak appeals benefited from repetition. Thus, the contribution of repetition to agreement with persuasive arguments, especially persuasive arguments of varying content quality, is more complex than simple application of IOT effects to persuasion would suggest.

In the three studies reported here, we examined the conditions under which and the processes by which familiarity signals from repetition of arguments with differing content quality influence agreement with persuasive arguments. Like Begg et al. (1992), we applied a process dissociation approach to this problem. We assumed that agreement with a particular statement may come from multiple sources, but most importantly for our purposes from the automatic implications of statement familiarity as well as from the implications of a more controlled processing of the persuasive arguments' content. The first of these processes was seen as automatic and universal: Because the feeling of fluency generated by repetition is typically attributed to either liking for or validity of the repeated statement (Bornstein, 1989; Hasher et al., 1977; Reber & Schwarz, 1999), we assumed that argument familiarity (induced by repetition) would automatically increase agreement, regardless of the argument content and regardless of information-processing conditions.

In contrast, the persuasive implications of argument content are quite different for weak and strong arguments and depend on a controlled process. Strong arguments are by definition ones whose content, when considered, triggers favorable reactions or elaborations, which, in turn, engender persuasion. However, weak arguments are those whose content, when considered, triggers unfavorable reactions and elaborations that make persuasion less likely (Petty & Cacioppo, 1986). Such differentiated persuasion outcomes depend on controlled resource-intensive consideration of argument content: Increased processing of message content produces increased persuasion in the case of strong arguments and lack of persuasion, or even a boomerang effect, in the case of weak arguments. Thus, increased capacity and motivation to process is typically thought necessary to distinguish the persuasive implications of weak and strong arguments (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986; Petty & Wegener, 1998).

The repetition of strong or weak persuasive arguments thus potentially provides recipients with two signals that contribute to agreement: an automatic signal associated with argument familiarity and a controlled resource-dependent signal on the basis of argument content. The familiarity signal automatically increases agreement regardless of argument content and regardless of controlled processing. The quality of the argument content signal impacts agreement as the result of a more controlled and differentiated process. The more message content is processed, the more strong and compelling arguments signal increased agreement, whereas weak, specious arguments provide a negative signal that inhibits agreement.

When controlled processing occurs, signals from argument content and signals from argument familiarity can thus provide congruent or incongruent types of influence for repeated arguments. When processing is extensive and repeated arguments are strong, both argument familiarity and argument quality have congruent effects that increase agreement, and, thus, repeated strong arguments are expected to be readily accepted. In contrast, when processing is extensive but repeated arguments are weak, repetition-induced familiarity signals increase agreement, but message content signals decrease agreement. Thus, for repeated weak arguments, argument familiarity and argument quality have incongruent effects on agreement, and agreement is expected to be inhibited. Although it is possible that some impact of argument quality could be apparent even at minimal levels of processing, the resource-dependent nature of the controlled processing of argument content means that the congruence of content and familiarity signals for strong arguments and the incongruence of signals for weak arguments would be most associated or disassociated, respectively, when processing is more extensive.

Thus in all three experiments, participants were experimentally motivated to engage in relatively less or more information processing of weak or strong persuasive arguments that were either

novel or repeated. We expected a three-way interaction among processing, repetition, and argument quality. When processing was minimal, we expected repeated arguments to garner greater acceptance, regardless of argument quality. When processing was extensive, we expected an interaction between argument quality and repetition. Specifically, we expected that when processing was extensive, repetition would enhance acceptance of strong arguments, whereas repetition would have little or no impact on agreement with weak arguments.

In addition to leading to this predicted three-way interaction on agreement, the simultaneous manipulation of argument quality, argument repetition, and motivation to process made the investigation of the various contributions of argument repetition and processing-dependent argument content tractable by PDP analysis. Because application of a PDP analysis requires some changes in procedure that deviate from those typically found in persuasion studies, we sought in a first experiment to establish that repetition and argument quality affected agreement as expected under different levels of information processing in a typical persuasion paradigm. In Experiments 2 and 3, we then applied the logic underlying the PDP analysis developed by Jacoby (1991) to explore further the contributions of the controlled processing of argument content and the automatic processing of repetition-based familiarity on agreement under different levels of motivation.

## Experiment 1

The goal of the first experiment was to demonstrate that extent of information processing moderated the interaction between argument quality and repetition in determining agreement with persuasive arguments. During an initial exposure phase of the experiment, participants simply read individual counterattitudinal weak or strong persuasive arguments in favor of implementing comprehensive exams. A target subset of arguments was displayed a single time and was then repeated later when participants were asked to report their agreement with each argument as well as entirely novel arguments for implementing comprehensive exams. The effect of repetition was examined by comparing agreement with the novel arguments to agreement with the arguments repeated once.

In order to manipulate participants' motivation to process, thus experimentally inducing relatively low or high levels of analytic processing, we framed the experiment as either relevant or irrelevant to our student population. The manipulation was modified from earlier research on information processing (Petty, Cacioppo, & Goldman, 1981). Half the participants were informed that implementation of comprehensive exams was being considered at their university and would affect them personally, thus increasing personal relevance and the motivation to process. The other half of the participants were informed that implementation of comprehensive exams was being considered at a distant university and would not affect them personally, thus reducing personal relevance and the motivation to process.

We expected that when people had relatively little motivation to process, repetition would increase agreement with both weak and strong arguments similarly. In contrast, people with high motivation to process were expected to show an interaction between repetition and argument quality. Specifically, we expected the positive aspects of strong arguments to be congruent with repetitions' enhancing of agreement. In contrast, we expected the negative aspects of weak arguments to be incongruent and, thus, dampen the agreement-enhancing effects of repetition when arguments were more extensively processed.

### *Method*

#### *Participants and Design*

Participants were 39 undergraduate women at the University of California, Santa Barbara (UCSB) who participated in exchange for partial course credit. Participants were randomly assigned to a 2 (relevance: low or high) $\times$ 2 (argument quality: weak or strong) $\times$ 2 (repetition: novel and repeated) mixed-model design, with repetition as a within-subjects factor. The presentation of items in each level of the repetition factor was randomly determined in two counterbalancing conditions.[1]

#### *Procedure*

All participants were presented weak or strong arguments advocating the counterattitudinal position that comprehensive exams be implemented (Petty & Cacioppo, 1986). Arguments were modified to be of roughly equal length and were pilot tested to ensure that weak arguments were indeed less compelling than strong arguments.

Participants first received a manipulation of personal relevance to motivate relatively less or more information processing. In the low-relevance condition, our student participants from UCSB were informed that the study dealt with a Miami University campus issue and that Miami University administrators were considering the implementation of comprehensive exams for the upcoming 2007–2008 school year. Participants in the low-relevance condition were also told that their opinion was being collected on this matter even though it would have no effect on them at all. In contrast, UCSB participants in the high-relevance condition were given the same information, but UCSB was substituted for the university at which comprehensive exams were being considered. Additionally, these high-relevance participants were told that their opinion was being collected on this matter because it would affect them directly.

Participants were then presented the arguments in favor of implementing comprehensive exams. During an initial exposure phase, four weak or four strong arguments were presented for 6 s each. These target arguments were randomly presented among other persuasive arguments on the same topic that were repeated several times. Immediately after this presentation phase, participants reported their agreement with numerous weak or strong arguments, including the four arguments previously seen once and four entirely novel weak or strong arguments. Agreement was indicated on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Agreement ratings among the four repeated arguments were averaged, as were agreement ratings among the four novel arguments to reflect the two levels of the repetition factor.

[1] The counterbalancing factor did not moderate the predicted significant three-way interaction among relevance, argument quality, and repetition and thus is not discussed further.

### *Results and Discussion*

We conducted a 2 (relevance) × 2 (argument quality) × 2 (repetition) mixed-model analysis of variance (ANOVA). There were significant main effects of repetition, $F(1, 31) = 15.39$, $p < .001$, and argument quality, $F(1, 31) = 54.79$, $p < .001$. More importantly, the predicted interaction among relevance, argument quality, and repetition emerged, $F(1, 31) = 4.34$, $p < .05$ (see Figure 1).

To further examine the three-way interaction, we analyzed the two Argument Quality× Repetition interactions for low-relevance and high-relevance participants separately. Low-relevance participants agreed less with weak arguments ($M = 3.34$) than with strong arguments ($M = 5.01$) overall, $F(1, 31) = 33.13$, $p < .001$. As expected, participants agreed less with novel arguments ($M = 3.78$) than with repeated arguments ($M = 4.57$), $F(1, 31) = 15.71$, $p < .001$. Thus, when participants had little motivation to process, repetition similarly affected acceptance of weak and strong arguments, as predicted. There was no interaction between argument quality and repetition ($F < 1$).

High-relevance participants with more motivation to process showed a different pattern. They agreed less with weak arguments ($M = 3.27$) than with strong arguments ($M = 4.74$) overall, $F(1, 31) = 22.58$, $p < .001$. This was qualified by the predicted Argument Quality×Repetition interaction, $F(1, 31) = 5.49$, $p < .05$. When participants were experimentally motivated to process, they agreed less with novel strong arguments ($M = 4.32$) than with repeated strong arguments ($M = 5.17$), $t(31) = 2.84$, $p < .01$, consistent with both argument quality and familiarity providing congruent favorable signals that increased agreement. In contrast, participants motivated to process agreed equally with novel weak arguments ($M = 3.34$) and repeated weak arguments ($M = 3.20$; $t < 1$), consistent with the deficits of well-processed weak arguments counteracting repetitions' enhancement of agreement.

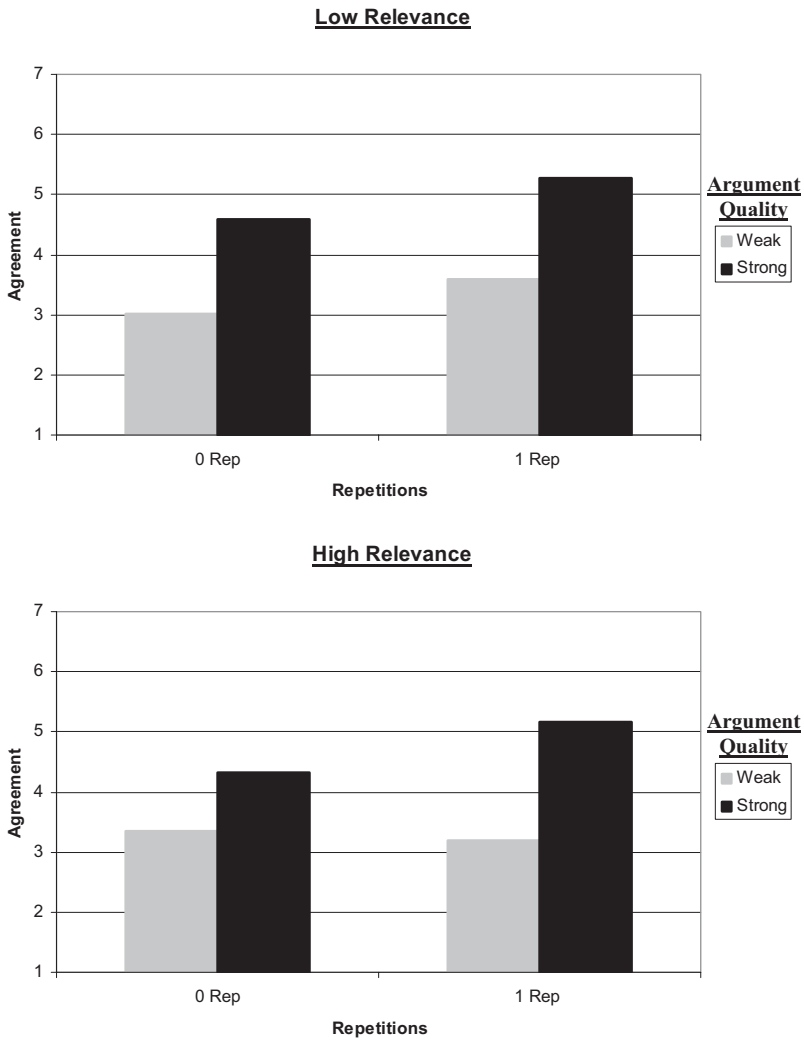


*Figure 1.* Mean agreement with novel and repeated weak and strong arguments for participants in the low-relevance condition (top panel) and the high-relevance condition (bottom panel) in Experiment 1. Rep = Repetition.

In summary, these results are consistent with hypotheses that repetition of weak and strong arguments would cause people with little motivation to increase their acceptance of the arguments, regardless of quality. Thus, when the actual content of the arguments was given relatively less weight, argument quality did not moderate the positive impact of repetition. In contrast, for participants who were motivated to process, repetition increased agreement with only strong arguments whose compelling content was consistent with the positive influence of familiarity. However, motivated processors did not increase agreement with repeated weak arguments, demonstrating that the limitations of specious arguments can negate the benefits of repetition, but only when those weak arguments are more extensively processed.

The results of Experiment 1 are consistent with the idea that there are two components that contribute to agreement with repeated weak and strong arguments. We have suggested that the first of these is an automatic component (familiarity) that directly influences agreement and that the second is a controlled component that reveals and is revealed by the quality of the persuasive arguments. We have also suggested that the second component depends on a deliberate, effortful, and controlled evaluation of the inherent quality of the persuasive arguments, and its impact is thus increased whenever processors have the motivation and ability to evaluate, elaborate, and integrate the arguments' content. To further examine the effect of these two contributors to agreement, and particularly to ascertain the relative role of each under different processing conditions, we used an experimental design and the logic underlying the PDP that allowed us to assess the impact of each component of agreement independently.

## Experiment 2

Following Begg et al. (1992), we used a modified version of Jacoby's (1991) process dissociation procedure to examine the independent influences of controlled and automatic processes on agreement. The PDP depends on each participant completing trials in which controlled and automatic processes exert congruent influences (i.e., inclusive tests) as well as trials in which controlled and automatic processes exert incongruent, or oppositional, influences (i.e., exclusive tests).

In terms of memory judgments, Jacoby (1991) established inclusive tests by instructing participants to base their decisions on any of the components of recognition: if a previously seen stimulus either felt familiar or was actually recollected. In terms of agreement decisions, a similar situation occurs when participants evaluate strong persuasive arguments. In this case, agreement with strong arguments may be based on either the quality of the argument that engenders a favorable response under controlled processing (C) or the feeling of familiarity (F) associated with it in the absence of controlled processing (1 − C). This is represented mathematically as:

$$P(\text{Agree}|\text{Strong argument}) = C + F(1 - C). \quad (1)$$

Jacoby (1991) created an exclusive test of memory in which both components act in opposite directions, and favorable responses are only achieved without the contribution of the control component. In terms of agreement decisions, a similar exclusive test occurs for agreement with specious arguments. Agreement with weak arguments will only occur when the influence of an automatic component of familiarity (F) functions in the absence of controlled processing (1 − C):

$$P(\text{Agree}|\text{Weak argument}) = F(1 - C). \quad (2)$$

As suggested by Jacoby (1991), the estimates of controlled and automatic processes can be derived algebraically:

$$C = P(\text{Agree}|\text{Strong argument}) - P(\text{Agree}|\text{Weak argument}). \quad (3)$$

$$F = P(\text{Agree}|\text{Weak argument})/(1 - C). \quad (4)$$

This use of the PDP allows for the estimation of a component influenced by the controlled processing of argument quality and a component influenced by automatic processes such as familiarity with the persuasive arguments. We used this procedure to examine how controlled processing and familiarity functioned under different levels of motivation and repetition and also to determine whether these underlying processes resulted in the pattern of agreement observed in Experiment 1 (see Jacoby, 1991, and Payne, 2005, for other descriptions of the PDP).

In Experiment 2, participants' motivation to process was once again manipulated by making the task irrelevant or relevant. Subsequently, all participants were exposed once to weak and strong arguments embedded within neutral filler arguments during an initial exposure phase. They then reported their agreement with previously seen arguments as well as with novel weak and strong persuasive arguments. A notable change to the experiment design was that both weak and strong arguments were presented to all participants, a within-subjects factor that permits the calculation of the PDP component estimates.

For participants' reported agreement with presented arguments, we once again expected a three-way interaction among relevance, argument quality, and repetition, such that participants with little motivation to process would respond similarly to both weak and strong arguments and be influenced primarily by repetition. In contrast, we predicted that participants highly motivated to process would show increased agreement with repeated strong arguments, but no such increase in agreement with repeated weak arguments. Thus, we expected to replicate the same pattern for agreement as in the previous study.

In terms of the PDP, we expected to show that increasing relevance would increase participants' information processing as reflected in the increased influence of the controlled component. Additionally, we predicted that repetition would generally increase familiarity as reflected in the increased influence of the automatic component regardless of how extensive controlled processing was, consistent with an automatic influence of familiarity on agreement. Thus, the results would show that relevance and repetition manipulations affected the controlled and automatic components, respectively, thereby clarifying the underlying effects responsible for the pattern of agreement observed.

However, we sought to provide further converging evidence that the automatic influence of familiarity and the impact of controlled processing affected agreement in hypothesized ways. To do this, we adapted a generalization criterion methodology (Busemeyer & Wang, 2000) and randomly selected half of participants' responses to calculate the automatic and controlled components of the PDP. We then used these estimates to examine how automatic and

controlled processes influenced participants' agreement with the other half of the weak and strong arguments. We expected that the automatic and controlled components would work quite differently for agreement with strong arguments than for agreement with weak arguments. For strong arguments, we anticipated that more familiarity and greater controlled processing would produce congruent effects such that both processes would increase agreement. In contrast, for weak arguments, we anticipated an interaction between automatic and controlled processing such that familiarity would increase agreement with weak arguments only when little controlled processing occurred. When controlled processing of weak arguments was greater, we expected little or no impact of familiarity on agreement. These analyses therefore provide an internal replication of the direct and interactive effects of automatic and controlled processes on agreement with weak and strong persuasive arguments.

## Method

### Participants and Design

Participants were 52 undergraduates (11 men and 41 women) who participated in exchange for partial course credit. Participants were randomly assigned to a 2 (relevance: low or high) × 2 (argument quality: weak and strong) × 2 (repetition: novel and repeated) mixed-model design, with both argument quality and repetition as within-subjects factors. The presentation of weak and strong arguments within each level of repetition was counterbalanced.[2]

### Procedure

*Agreement.* Participants were presented the identical relevance manipulation used in Experiment 1 immediately before the exposure phase. During the exposure phase, participants read 30 arguments for 5 s each: 10 weak, 10 strong, and 10 neutral filler arguments used to dilute the contrast between weak and strong arguments. Immediately afterward, participants reported agreement with all previously seen 30 arguments as well as 30 novel arguments (10 weak, 10 strong, 10 neutral) using a 6-point scale, where1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, and 6 = *strongly agree*. Participants reported standard demographic variables before being debriefed and thanked.

*Automatic and controlled process estimates.* Analysis of the PDP-controlled component revealed only the predicted main effect of relevance such that participants in the low-relevance condition engaged in less controlled processing ($M = 0.16$) than participants in the high-relevance condition ($M = 0.32$), $F(1, 50) = 6.83$, $p < .001$. We followed Begg et al.'s (1992) procedures and rationale that dichotomizing the scale to produce proportion scores is analytically preferable over analysis of average agreement ratings, even though analysis of average agreement ratings resulted in the same conclusions. Participants' reported agreement with each weak and strong argument was dichotomized such that scores of three and below were coded as zero, and scores of four and above were coded as one. Averaging these scores for weak arguments and strong arguments separately produced two scores reflecting the proportion of both weak and strong arguments that participants considered relatively compelling. Following Equation 3, controlled processing was estimated for each participant by subtracting the proportion of actually weak arguments considered compelling from the proportion of actually strong arguments considered compelling. This produced a proportion score that estimated the control component (C), which reflected discrimination of weak and strong arguments. Subtracting this proportion score from one resulted in the estimate of a lack of controlled processing (1−C). Finally, Equation 4 was used to estimate the automatic influence of familiarity (F) by dividing the proportion of actually weak arguments participants considered compelling by the estimate of the lack of controlled processing, thus isolating the remaining automatic influences such as familiarity.

## Results and Discussion

### Agreement

To test for the predicted three-way interaction on agreement with the persuasive arguments, we conducted a 2 (relevance) × 2 (argument quality) × 2 (repetition) mixed-model analysis of variance (ANOVA), with argument quality and repetition as within-subjects factors. Results revealed significant main effects for argument quality, $F(1, 48) = 197.31$, $p < .001$, and repetition, $F(1, 48) = 15.93$, $p < .001$. Additionally, a Relevance × Argument Quality interaction emerged, $F(1, 48) = 13.49$, $p = .001$. All these effects were qualified by the predicted three-way interaction among relevance, argument quality, and repetition, $F(1, 48) = 4.33$, $p < .05$ (see Figure 2).

Participants in the low-relevance condition agreed less with weak arguments ($M = 3.36$) than with strong arguments ($M = 3.85$), $F(1, 48) = 53.60$, $p < .001$. They also agreed less with novel arguments ($M = 3.37$) than arguments repeated once ($M = 3.84$), $F(1, 48) = 15.68$, $p < .001$. These two main effects were not qualified by an interaction between argument quality and repetition, $F(1, 48) = 1.17$, $p > .28$.

Participants in the high-relevance condition agreed less with weak arguments ($M = 3.16$) than with strong arguments ($M = 4.00$) overall, $F(1, 48) = 156.38$, $p < .001$. However, their responses also revealed an interaction that approached significance between argument quality and repetition that replicated the effect observed in Experiment 1, $F(1, 48) = 3.46$, $p < .07$. Specifically, novel strong arguments were agreed with less ($M = 3.85$) than strong arguments repeated once ($M = 4.15$), $t(48) = 2.24$, $p < .05$, whereas there was no difference in agreement with novel weak arguments ($M = 3.11$) and weak arguments repeated once ($M = 3.21$) ($F < 1$, $p > .45$). As predicted, participants with little motivation to process showed an increase in agreement due to repetition regardless of argument quality, but more motivation to process once again increased agreement as strong arguments were repeated, but eliminated the effect of repetition on weak arguments.

### Automatic and Controlled Process Estimates

PDP analysis of the controlled component revealed only the predicted main effect of relevance such that participants in the

[2] The counterbalancing factor did not moderate the predicted significant three-way interaction among relevance, argument quality, and repetition on agreement and thus is not discussed further.

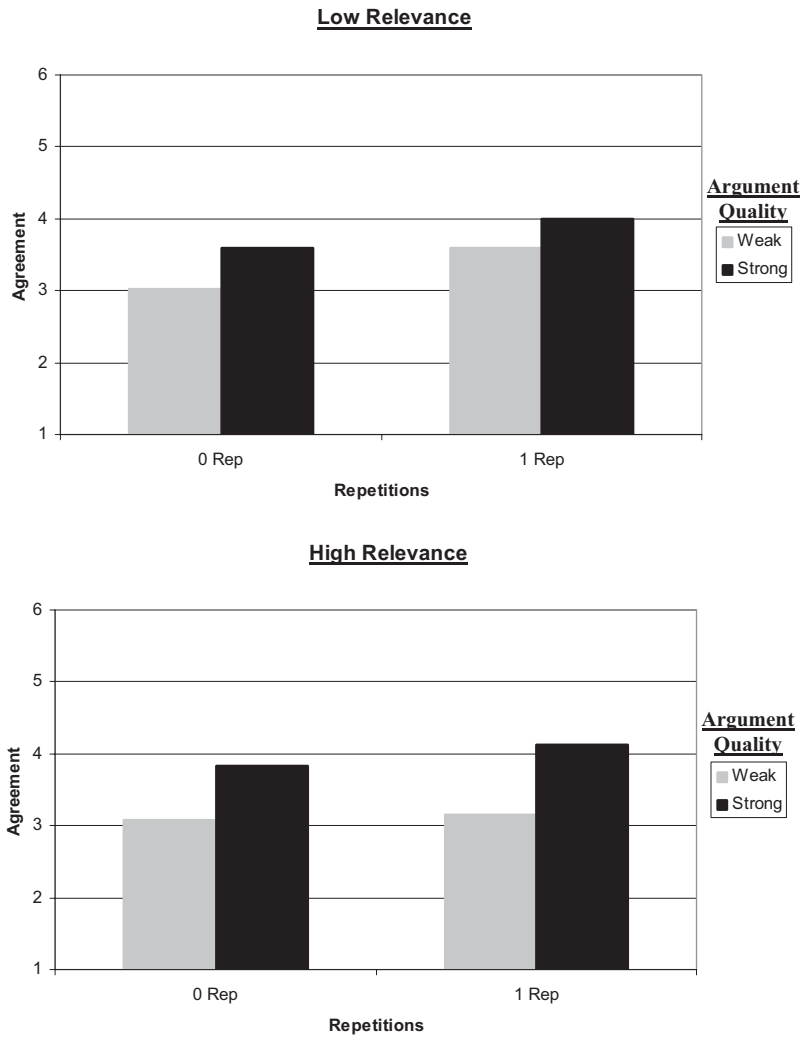


*Figure 2.* Mean agreement with novel and repeated weak and strong arguments for participants in the low-relevance condition (top panel) and the high-relevance condition (bottom panel) in Experiment 2. Rep = Repetition.

low-relevance condition engaged in less controlled processing ($M = 0.16$) than participants in the high-relevance condition ($M = 0.32$), $F(1, 50) = 16.83$, $p < .001$. Also as predicted, analysis of the automatic component revealed only an effect of repetition such that there was less automatic influence for novel arguments ($M = 0.56$) than for repeated arguments ($M = 0.67$), $F(1, 50) = 11.48$, $p = .001$. Thus, participants engaged in more controlled processing when they were more motivated, and participants were more influenced by familiarity when persuasive arguments were repeated, exactly as expected. This pattern of results is consistent with the notion that familiarity exerted an automatic influence regardless of how extensive controlled processing was. These results also reveal that highly motivated processors evaluating repeated persuasive arguments were most likely to be influenced by both argument quality and familiarity, whereas participants with little motivation to process were most influenced by familiarity alone.

Although these findings clarify what processes were most influential under each experimental condition, the question of how these processes directly and interactively affected agreement with strong and weak persuasive arguments remains unanswered. In fact, controlled processing and familiarity could have exerted any of several types of direct or interactive effects on agreement. However, we specifically anticipated that both processes would have a direct and congruent effect of increasing agreement with strong arguments but have an interactive effect on agreement with weak arguments. To investigate this, we used the estimates of controlled and automatic processes to predict participants' agreement with weak and strong arguments. However, because calculating the PDP components required using participants' reported agreement with the arguments, the same data we were interested in predicting, we needed to recalculate the PDP components using only half of participants' agreement data. That is, we randomly selected participants' reported agreement for half of the presented persuasive arguments and recalculated the control and automatic component estimates. This strategy left a randomly determined set of different weak and strong arguments to serve as dependent

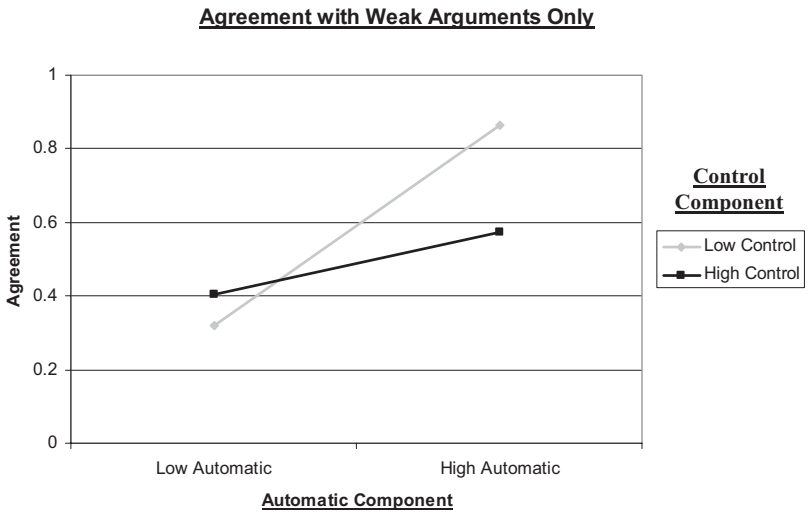


*Figure 3.* Agreement with repeated weak arguments as a function of the automatic component estimate (plotted at one standard deviation below and above the mean) and the controlled component estimate (plotted at one standard deviation below and above the mean) in Experiment 2.

variables in subsequent regressions. Although this split-half analytic strategy undoubtedly increases the covariation between regression predictors and dependent variables, this inflated association would be equivalent across conditions, thus controlling for any artificial overestimation of parameter estimates. This methodology extended the value of the PDP approach by allowing for examination not only of how experimental conditions increased controlled and automatic processing but also of how controlled and automatic processing impacted the outcome variable of interest, in this case agreement with persuasive arguments.

We investigated how controlled and automatic processes impacted agreement with weak and strong persuasive arguments by performing two regressions: one regression for agreement with weak arguments and a separate regression for agreement with strong arguments. In both regressions, the centered controlled component estimate and the centered automatic component estimate were entered at Step 1 in order to evaluate the main effects of each component on agreement. The interaction between the controlled component and automatic component was entered at Step 2 in order to evaluate whether the automatic influence of familiarity influenced agreement differently under different levels of controlled processing.

The first regression examined how control and automatic processes impacted agreement with strong arguments.[3] Two main effects emerged reflecting the congruent influence of controlled processing of strong arguments and familiarity with strong arguments. More controlled processing was associated with more agreement ($\beta = .23$, $p < .05$), consistent with more extensive consideration of strong arguments underscoring their compelling nature. Additionally, increased automatic influence was associated with increased agreement ($\beta = .68$, $p < .001$), consistent with familiarity uniformly enhancing acceptance of persuasive arguments. As anticipated, both automatic and controlled processes consistently increased acceptance of strong arguments.

A second regression examined how controlled and automatic processes impacted agreement with repeated weak arguments. The observed main effect of the automatic component on agreement with weak arguments ($\beta = .43$, $p < .01$) was expected to be qualified by a significant interaction. Because relatively high levels of controlled processing would highlight the inherent speciousness of weak arguments, and this specious message content was expected to counteract the agreement-enhancing effects of familiarity, we anticipated an interaction such that the automatic familiarity component would only increase agreement with weak arguments when there was little controlled processing. Regression results confirmed this predicted interaction ($\beta = -.33$, $p < .05$). As illustrated in Figure 3, when controlled processing was relatively low, agreement with weak arguments increased as automatic influences increased ($\beta = .83$, $p < .001$). In contrast, when controlled processing was relatively high, the beneficial impact of automatic influences only approached significance ($\beta = .26$, $p > .07$).

The results from Experiment 2 replicated nicely the three-way interaction found in the first experiment among relevance, argument quality, and repetition on participants' agreement with persuasive arguments. Moreover, the use of the PDP provided several new insights into the processes underlying this three-way interaction. The PDP findings provided evidence that personal relevance increased the controlled processing of persuasive arguments, without affecting the automatic influence of familiarity. In addition, the repetition of persuasive arguments was shown to increase the automatic influence of familiarity independent of controlled processing. This suggests that the impact of familiarity can function automatically and regardless of constraints on people's cognitive capacity or motivation to process information deeply.

Further analyses using the control and automatic components to predict agreement with persuasive arguments were entirely consistent with expectations. In the case of strong arguments, controlled and automatic processing worked in conjunction to increase

[3] Results from both reported regressions also held when controlling for the influence of the relevance manipulation.

agreement. In contrast, the impact of controlled processing opposed the positive automatic influence of familiarity in the case of weak arguments. This pattern is consistent with our account that increased controlled processing of specious arguments underscores the limitations of those arguments, which dramatically reduces the benefits of familiarity for agreement. In short, this experiment supported hypotheses that these two types of cognitive processes can directly and interactively impact acceptance of persuasive arguments.

Despite the theoretical insights provided by the use of this PDP approach, both the novelty of its application to the persuasion arena and our decision to deviate from typical PDP procedure by using more persuasion-relevant subjective agreement ratings mandate that these effects be replicated. Because agreement is idiosyncratic to each individual, it is possible that any particular participant processed to the fullest extent but did not produce a perfect score on the control component due to the fact that they simply did not agree with the pretested categorization of the arguments as weak or strong. Although relying on the social consensus of a pilot sample to identify unconvincing and convincing arguments still provides valuable information about the relative levels of controlled and automatic processes across experimental conditions, as in Experiment 2, this approach may not best capture each participant's individual cognitive processes. Thus, we sought to replicate the informative PDP findings from Experiment 2 by using a paradigm that better assessed the occurrence of controlled and automatic processes within each individual.

## Experiment 3

We used an idiographic approach in Experiment 3 in order to more accurately estimate the control and automatic processes influencing the acceptance of persuasive arguments. During an initial exposure phase, participants evaluated every persuasive argument and categorically reported whether they either agreed or disagreed with the arguments. This dichotomous categorization of the persuasive arguments provided a baseline assessment of which arguments participants personally considered to be convincing and which they considered to be unconvincing. By using participants' reported agreement in the first phase of the experiment as a classification variable, we were able to determine whether participants agreed with their own earlier judgments upon judging the persuasive arguments again at a later time.

We also wanted to provide evidence that the controlled and automatic processes underlying the effects on agreement functioned similarly for subjective agreement judgments (which are atypical but not unused with PDP analysis; Begg et al., 1992) as well as for objective memory judgments (more commonly used in prior implementations of the PDP; Jacoby, 1991; Payne, 2005). Therefore, upon seeing the persuasive arguments the second time, participants were randomly assigned to make one of two different types of judgments. In the agreement judgment condition, parallel to the previous experiments, participants reported whether they agreed or disagreed with each argument during the initial exposure phase, and then in the later repetition phase once again reported whether they agreed or disagreed with each argument.

However, in the recall judgment condition, participants initially indicated whether they either agreed or disagreed with each argument but were later asked in the repetition phase to *recall* their earlier response, saying whether they had agreed or disagreed with each argument when asked during the initial exposure phase. Recall of initial judgments of the persuasive argument provided an objective criterion with which controlled processing could be assessed. Perfect recollection of earlier responses would produce an identical set of responses during the repetition phase of the experiment. However, we did not expect participants to perfectly recall their earlier responses. Indeed, we expected a specific pattern of errors in recall that would reflect participants' changes in agreement upon repeated exposure to the arguments (as evidenced by participants in the agreement judgment condition). We expected that upon a second exposure to the persuasive arguments, all participants would form a new evaluation of the argument that would determine their reported agreement and that would bias participants' recall of their earlier responses. Just as repetition might change what appeared to be a weak argument into a strong one, we assumed that the same processes underlying this change would mean that a statement originally judged to be weak and specious might now be mistakenly recalled as having been strong and convincing. Thus, we anticipated a similar pattern of results for both agreement and recall judgments, which would provide converging evidence of the powerful influence exerted by argument quality and repetition, even with "objective" rather than "subjective" judgments.

Because participants' initial dichotomous judgments were used to classify the persuasive arguments, these data were not used in analyses. Instead, analyses were performed on participants' second evaluation of the persuasive arguments, when all the arguments had been seen twice (i.e., repeated). We anticipated that all participants, regardless of their level of motivation to process, would make comparably favorable judgments of repeated strong arguments (i.e., equally high agreement or equal errors in recalling initial agreement with originally strong arguments). In contrast, we anticipated that participants with little motivation would make more favorable judgments of repeated weak arguments (i.e., greater agreement or increased misremembering of originally weak arguments as strong) than participants with greater motivation to process. This pattern would once again show that increased processing reduced agreement with specious arguments, consistent with the notion that increased processing highlighted the limitations of weak arguments, negating the positive impact of familiarity.

In terms of the PDP, we expected to replicate the finding that increased motivation to process affected controlled processing but did not impact the automatic influence of familiarity, thus confirming the generally positive impact of familiarity regardless of the extent of controlled processing. Furthermore, we expected to replicate findings from Experiment 2 by using the split-half analytic approach. In the case of strong, compelling arguments, we expected that both controlled processing and familiarity would increase the favorability of evaluations. In contrast, in the case of weak, specious arguments, we expected that familiarity would increase the favorability of evaluations only when controlled processing was low. Thus, we once again predicted that the manipulation of personal relevance would impact controlled processing but not familiarity and that the variation in controlled processing

and familiarity would be associated with changes in the favorability of evaluations in theoretically predictable ways.

## Method

### Participants and Design

Participants were 83 undergraduates (15 men and 68 women) who participated in exchange for partial course credit. Participants were randomly assigned to a 2 (relevance: low or high) × 2 (judgment: repeated agreement or recall) × 2 (argument quality: weak and strong) mixed-model design, with argument quality as a within-subjects factor. Because the initial judgments of agreement with the persuasive arguments were used to classify arguments as weak or strong, repetition was not a factor.

### Procedure

The procedures closely followed those of Experiment 2. The identical manipulation of personal relevance was provided before participants completed an initial exposure phase. In this version of the exposure phase, participants were asked to make a dichotomous judgment by reporting whether they either disagreed (coded as 0) or agreed (coded as 1) with each of 60 persuasive arguments in favor of implementing comprehensive exams. Participants were provided with a 1-min pause before evaluating the arguments for the second time.

*Agreement or recall of agreement.* Participants in the repeated agreement condition were simply asked once again to make a dichotomous judgment of whether they disagreed or agreed with each persuasive argument. Participants in the recall condition were asked to remember how they categorized each argument during the initial exposure phase and respond in the identical manner. Thus, all judgments of the persuasive arguments were dichotomous in nature.

*Check on manipulation of relevance.* As a check on the manipulation of personal relevance, participants used 7-point scales to report how carefully they read the statements (1 =*not at all carefully*, 7 =*very carefully*), how much effort they put into reading the statements (1 =*very little*, 7 =*very much*), and how motivated they were to read the statements carefully (1 =*very unmotivated*, 7 =*very motivated*). These items were combined into a single motivation index ($\alpha = .85$). Participants completed standard demographic questions before being debriefed and thanked.

## Results

### Check on Manipulation of Relevance

To confirm the effectiveness of the manipulation of personal relevance, we subjected the motivation index to a 2 (relevance) × 2 (judgment) between-subjects ANOVA. As expected, only a main effect of the relevance condition emerged such that participants in the low-relevance condition expressed less motivation ($M = 4.23$) than participants in the high-relevance condition ($M = 5.23$), $F(1, 79) = 9.77$, $p < .01$.

### Agreement or Recall of Agreement

We performed a 2 (relevance) × 2 (judgment) × 2 (argument quality) mixed-model ANOVA to examine how both participants' agreement with repeated persuasive arguments and their recall for their earlier agreement with persuasive arguments was influenced by motivation and idiographic argument quality.

A main effect of argument quality emerged such that participants made more favorable judgments of compelling arguments ($M = 0.78$) than of specious arguments ($M = 0.22$), $F(1, 79) = 541.72$, $p < .001$. Additionally, a main effect of relevance emerged such that participants in the low-relevance condition made more favorable judgments of the arguments ($M = 0.53$) than participants in the high-relevance condition ($M = 0.48$), $F(1, 79) = 4.00$, $p < .05$.

Of more theoretical importance, the predicted interaction between relevance and argument quality emerged, $F(1, 79) = 6.49$, $p < .05$. Consistent with hypotheses, repeated strong arguments were judged similarly by participants in both the low-relevance condition ($M = 0.78$) and the high-relevance condition ($M = 0.79$) ($t < 1$). In contrast, just as predicted, repeated weak arguments were judged more favorably by participants in the low-relevance condition ($M = 0.28$) than by participants in the high-relevance condition ($M = 0.17$), $t(79) = 3.11$, $p < .01$.

As anticipated, neither the three-way interaction nor any of the two-way interactions involving judgment type emerged ($Fs < 1$), indicating that the biasing influences of argument quality and repetition functioned similarly whether participants reported their subjective agreement or whether they attempted to recall their earlier judgment explicitly.

### Automatic and Controlled Process Estimates

Analysis of the control and automatic PDP components indicated that the relevance manipulation only impacted controlled processing, $E(1, 79) = 6.49$, $p < .05$, such that less controlled processing occurred in the low-relevance condition ($M = 0.50$) than in the high-relavance condition ($M = 0.62$). This is consistent with familiarity exerting its influence regardless of participants' extent of controlled processing. As in Experiment 2, by recalculating the PDP control and automatic components using participants' judgments for only one randomly selected half of the persuasive arguments, we were again able to use the control and automatic components, along with their interaction, to predict participants' evaluations of repeated strong arguments and repeated weak arguments.

We conducted two regressions to examine the main effect of controlled processing and the main effect of familiarity entered at Step 1, along with their interaction term entered at Step 2. One regression examined how these components influenced evaluations of compelling arguments, whereas the second regression examined how the components influenced evaluations of specious arguments.[4]

The first regression examined how controlled and automatic processes impacted judgments of strong arguments. Two main effects emerged, reflecting the congruent influence of controlled processing of strong arguments and familiarity with strong arguments. More controlled processing was associated with more favorable evaluations ($\beta = .43$, $p < .001$), and increased automatic

[4] Because the judgment factor produced no differences in the agreement results, it was not included in the presented regression analyses. However, the same conclusions held even when the judgment and relevance factors were taken into account.

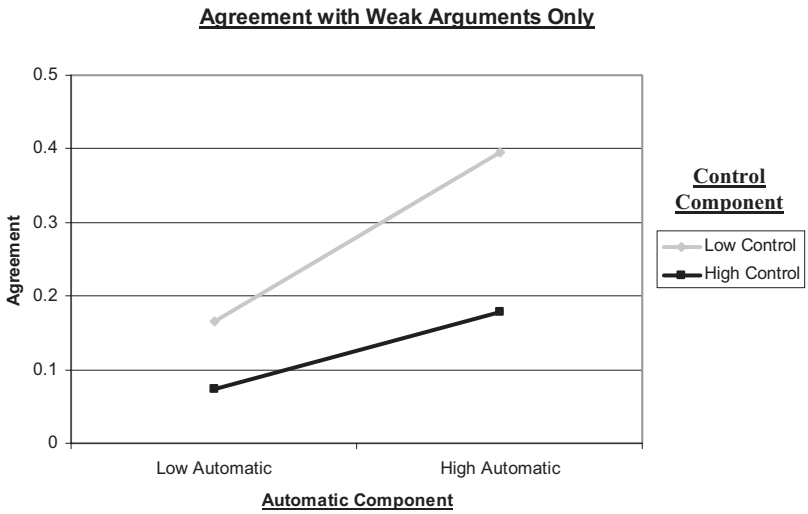


*Figure 4.* Agreement with repeated arguments that were originally disagreed with as a function of the automatic component estimate (plotted at one standard deviation below and above the mean) and the controlled component estimate (plotted at one standard deviation below and above the mean) in Experiment 3.

influence was associated with more favorable evaluations ($\beta = .34$, $p = .001$), consistent with hypotheses. Once again, both automatic and controlled processes consistently increased acceptance of strong arguments.

A second regression examined how control and automatic processes impacted judgments of weak arguments (see Figure 4). More controlled processing was associated with less favorable evaluations ($\beta = -.46$, $p < .001$), and increased automatic influence was associated with more favorable evaluations ($\beta = .43$, $p < .001$). However, we anticipated an interaction such that familiarity would improve evaluations of weak arguments to a greater extent when little controlled processing occurred. A marginal interaction was consistent with this hypothesis ($\beta = -.16$, $p < .09$). When controlled processing was relatively low, evaluations of weak arguments were improved as automatic influences increased ($\beta = .65$, $p < .001$). In contrast, when controlled processing was relatively high, the beneficial impact of automatic influences was weaker ($\beta = .29$, $p < .05$) but not eliminated.

Overall, these findings closely match results from Experiment 2. Once again, more extensive information processing reduced the impact of familiarity on agreement with weak arguments. This follows from our account that increased processing of weak arguments highlights the limitations of these arguments, which then works to counteract, but not necessarily fully eliminate, the positive impact of repetition. Moreover, the relevance manipulation impacted only controlled processing, suggesting that the automatic influence of familiarity consistently worked to increase agreement with persuasive arguments regardless of controlled processing.

Finally, the estimated controlled and automatic processes were shown to influence agreement with strong and weak arguments in predicted ways. Just as in Experiment 2, controlled and automatic processes worked to increase acceptance of compelling arguments. In contrast, the increased controlled processing of weak arguments reduced familiarity's beneficial effect on agreement.

## General Discussion

The present experiments extend previous work on the impact of repetition on ratings of validity (the IOT) to show the ways in which repetition can increase acceptance of persuasive arguments depending on the quality of those arguments and the way in which those arguments are processed. All three experiments demonstrated that although the quality of persuasive arguments can qualify repetition's enhancement of agreement, this depends on the extent to which people have the capacity and motivation to detect and be influenced by the quality of those arguments. When people have little motivation to process, their diminished sensitivity to argument quality reduces its impact and produces increased acceptance of repeated arguments regardless of their quality. In contrast, people motivated to process are persuaded by the quality of strong arguments along with the repetition of those arguments, but when these motivated processors detect the specious nature of weak arguments, the effect of repetition is overridden.

A similar pattern of results emerged when the processes hypothesized to underlie these agreement effects were estimated and analyzed directly using a PDP approach (Experiments 2 and 3). Both controlled processing of message content and the automatic impact of repetition-induced familiarity contribute to agreement. Increased controlled processing enhances the impact of the quality of message content, whereas increased familiarity consistently provides a positive signal that increases agreement. In the case of strong arguments, both controlled and automatic processes enhance agreement, but increased controlled processing makes the limitations of specious arguments more evident and counteracts the benefits of familiarity. In summary, the extent of information processing can determine how repetition will impact agreement because people can potentially be influenced by both repetition-induced familiarity and the actual quality of the persuasive arguments presented.

The present findings were greatly informed by the dissociation of underlying controlled and automatic processes responsible for the effects on agreement. To our knowledge, this is the first application of the PDP to the persuasion domain, in which the discrepancy in response to weak and strong arguments has long been acknowledged as an index of analytic information processing. The application of the PDP technique to the contribution of argument repetition and argument content to agreement necessitated changes both in the typical persuasion-based IOT paradigm and in the typical application of PDP measures. We resolved these difficulties by first establishing that the factors of interest interacted as would be expected in a typical persuasion paradigm (Experiment 1), and then by changing primarily the application of the PDP (by using a subjective dependent variable in Experiment 2) and then primarily features of the persuasive paradigm (with an idiographic approach comparing only repeated arguments but using an objective criterion measure in Experiment 3). Because we were able to replicate the same pattern of agreement responses across various conditions of multiple studies, and also show that variations in the judgments that we asked people to make across studies did not change the basic findings, we were able to provide converging evidence for the contribution of an automatic familiarity process and a controlled process of message content evaluation to agreement, under the processing conditions that determine their relative impact.

However, these results diverge in some ways from previous research. Claypool, Mackie, Garcia-Marques, McIntosh, and Udall (2004) showed that three repetitions of a weak or strong message of little personal relevance reduced participants' differential agreement with the weak or strong message. In the present studies, we found no such decrease in participants' differential agreement with repeated weak and strong arguments under low personal relevance. However, a number of methodological differences might explain these different findings. Claypool et al. (2004) repeated full messages three times in identical, uniform, and homogeneous presentations, whereas in the present experiments, single arguments were repeated just once in a heterogeneous presentation of target arguments randomly presented among filler items. Relative to Claypool et al. (2004), it is possible that the fewer repetitions and more complex presentation of weak and strong arguments in these experiments reduced participants' feeling that the stimuli were entirely identical and did not merit at least some analytic processing (Garcia-Marques & Mackie, 2001).

Our measure of controlled processing also differed somewhat from previous implementations of the PDP that focused on explicit memory as the controlled process of interest. We construed controlled processing as people's ability to discriminate between weak and strong arguments, a measure paralleling processing indices in countless persuasion studies. That is, to the extent that people are capable and motivated to engage in more analytic, controlled processing they are sensitive to argument quality. However, previous IOT studies provided cues that were incongruent or congruent with familiarity's effects only at the learning phase, and then used the extent to which people recalled those earlier cues as an estimate of controlled processing. In contrast, argument quality was inherent in the persuasive appeals used in our studies, and thus the basis for effortful discrimination was available at both the learning and judgment phases. Because of these and other potential differences, future research should investigate the consequences of controlled processing signals being available at learning, judgment, or both.

The present application of the PDP to persuasion and attitude change research has several theoretical and methodological implications. First, the PDP provides an independent assessment of two processes that contribute to agreement. Assessing controlled processing and the automatic influence of familiarity clarifies when and how controlled processes and the automatic effect of familiarity work in conjunction or in opposition. In the present studies, the PDP allowed for close examination of the antecedents that determine the extent of controlled processing (e.g., motivation) and, separately, the antecedents that determine familiarity (e.g., repetition). As a result, the direct and interactive consequences that these two processes have on agreement were observable, which clarified when familiarity remains influential and when its impact is dissipated. More precisely, these experiments extend the Cacioppo and Petty (1989) findings by first providing an estimate of familiarity's impact then revealing that familiarity has an impact even when processing motivation is high but that that motivation can sometimes counteract familiarity (i.e., when arguments are weak) and sometimes augment it (i.e., when arguments are strong). Thus, utilization of the PDP in a persuasion context provided direct evidence for the simultaneous operation and influence of two independent processes, the antecedents that shape those processes, and the consequences of those processes in producing attitude change.

Second, these experiments offer an important methodological advance in the study of persuasion processes. The presentation of both weak and strong arguments to every participant successfully produced a within-subjects measure of controlled processing. Rather than comparing across groups of people who receive either weak or strong arguments, indexing the extent of information processing within individuals increases researchers' methodological flexibility and the statistical power to investigate additional research questions in the area of information processing and attitude change. Rather than the typical examination of analytic processing across groups of people under different conditions, this paradigm allows researchers to examine how a wide variety of factors impact a person's motivation or capacity to engage in extensive controlled processing from one moment to the next. That is, changes within an individual's extent of information processing, as well as their reliance on automatic processes, are now simultaneously discernable in paradigms such as this one, in which each participant receives both weak and strong arguments.

Third, the presented research underscores the value of applying procedures developed in one area of psychology to other areas. Begg et al. (1992) extended Jacoby's (1991) PDP, originally based on memory research, to automatic and controlled components of validity judgments. Social psychologists have adapted the PDP to study the automatic and controlled components of prejudiced judgments (Ferreira, Garcia-Marques, Sherman, & Sherman, 2006; Payne, 2005; Sherman, Groom, Ehrenberg, & Klauer, 2003). We in turn adapted the procedure to the understanding of the processes driving acceptance of persuasive arguments and attitude change, extending its usefulness to an entirely new domain of social psychological research. Indeed, the parallels between the PDP and dual-process frameworks in the persuasion domain are evident in that the difference between agreement with weak arguments and agreement with strong arguments serves as a measure of controlled

processing in PDP, just as this same weak–strong difference has indicated more controlled and analytic processing in countless persuasion studies. Thus, these experiments serve as examples of how theoretical and methodological innovations emerge by bridging across scientific subdisciplines.

Persuasion is a pervasive and crucial component of social life. Marketers target consumers, lawyers plead with juries, and doctors implore patients to take their medication. Beyond the theoretical advances rendered by application of the PDP method to the assessment of repetition's impact on agreement, knowing how and when repeating persuasive appeals induces desired attitude change has practical implications. These studies show that simply relying on repetition as a blunt persuasive instrument is inefficient, regardless of The Bellman's confidence in the strategy. As our findings show, not only does the Bellman need to know whether the recipients of his repeated statements are likely to process more or less extensively, he also needs to consider, at least in cases in which they are motivated and able to do so, the quality of what he has to say.

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